

I claim:

1. A bifurcated stent delivery catheter comprising:
 - an elongate catheter body having a distal end, at least one guide wire lumen therethrough and an inflation lumen therethrough; and
 - a balloon mounted on the distal end of the catheter and in fluid communication with the inflation lumen, the balloon comprising,
 - a proximal portion having a first expanded diameter,
 - a distal portion having a second expanded diameter, the first expanded diameter larger than the second expanded diameter, and
 - a guide wire port located in a transition region between the proximal portion of the balloon and the distal portion of the balloon and in communication with the at least one guide wire lumen.
2. The bifurcated stent delivery catheter of claim 1 further comprising:
 - a second guide wire lumen having a distal port distal of a distal end of the distal portion of the balloon.
3. The balloon of claim 1 wherein the proximal portion has a central axis and the distal portion has a central axis, the axis of the proximal portion offset from the axis of the distal portion.
4. The balloon of claim 1 wherein the proximal portion has a central axis and the distal portion has a central axis, the axis of the proximal portion co-linear with the axis of the distal portion.
5. The balloon of claim 1 wherein

the proximal portion has a proximal waist, a distal waist and a body therebetween, and

the distal portion has a proximal waist, a distal waist and a body therebetween.

6. The guide wire port of claim 5 wherein the port is positioned between the distal waist of the proximal portion of the balloon and the proximal waist of the distal portion of the balloon.

7. The balloon of claim 5 wherein the distal waist of the proximal portion of the balloon is bonded to a proximal end of the proximal waist of the distal portion of the balloon, thereby providing a sealed fluid path connecting the proximal portion of the balloon to the distal portion of the balloon.

8. The balloon of claim 5 wherein the distal waist of the proximal portion of the balloon forms a reverse cone sized and configured to closely wrap over the proximal waist of the distal portion of the balloon.

9. A dual balloon catheter comprising:

an elongate catheter body having a distal end, at least one guide wire lumen therethrough and an inflation lumen therein;

a first proximal balloon having a proximal portion bonded to the catheter;

a second distal balloon having a distal portion bonded to the catheter distally of the first balloon, the proximal and distal balloons in fluid communication with the inflation lumen; and

a guide wire port positioned between the first and second balloons and in communication with the at least one guide wire lumen.

10. The dual balloon catheter of claim 9 wherein a distal portion of the first balloon is bonded to a proximal portion of the second balloon.
11. The dual balloon catheter of claim 9 further comprising:
 - a second guide wire lumen having a distal exit port distal of the distal portion of the second balloon.
12. The first balloon of claim 9 further comprising:
 - a distal waist means configured to closely fit about a proximal waist of the second balloon.
13. The dual balloon catheter of claim 9 wherein the first balloon has a first axis offset from a second axis of the second balloon.
14. A system for delivering a bifurcated stent comprising:
 - a catheter having at least a guide wire lumen and an inflation lumen therein;
 - an expansion means mounted to the catheter and in fluid communication with the inflation lumen;
 - a stent comprising
 - a first portion with an expanded diameter
 - a second portion with an expanded diameter, the expanded diameter of the first portion larger than the expanded diameter of the second portion,
 - a radial opening in the stent adapted to pass a guide wire through the stent, the opening located between a distal and a proximal end of the stent, the stent mounted on the expansion means; and

a guide wire exit port in communication with the guide wire lumen and located between a distal end and a proximal end of the expansion means, the port aligned with the stent such that a wire exiting the port will pass through the radial opening in the stent.

15. The catheter of claim 14 further comprising:
 - a stiffening member.
16. The stent of claim 14 where the first and second portions comprise separate stents.
17. The catheter of claim 14 further comprising:
 - a second guide wire lumen having an exit port distal of the distal end of the expansion means.
18. The system for delivering a bifurcated stent of claim 14 further comprising:
 - a stent sleeve mounted about one of the distal end of the expansion means or the proximal end of the expansion means, the stent sleeve configured to releasably secure the distal end of the stent.
19. A bifurcated stent delivery device comprising:
 - a catheter having a guide wire lumen therethrough and an at least one inflation lumen therein;
 - an expansion member having
 - a proximal portion in fluid communication with the at least one inflation lumen and a first expanded diameter and
 - a distal portion in fluid communication with the at least one inflation lumen and a second expanded diameter, the first expanded diameter greater than the second expanded diameter; and

a stent sleeve mounted about at least one of a distal end of the distal portion of the expansion member or a proximal end of the proximal portion of the expansion member, the stent sleeve configured to protect or secure an end of a stent.

20. The bifurcated stent delivery device of claim 19 wherein the expansion member comprises:

a first proximal balloon bonded to a distal end of the catheter; and
a second balloon bonded to a distal end of the catheter.

21. The bifurcated stent delivery device of claim 19 further comprising a guide wire port in communication with the guide wire lumen and located between the distal portion of the expansion member and the proximal portion of the expansion member.

22. The catheter of claim 19 further comprising a second guide wire lumen therethrough.

23. The catheter of claim 19 further comprising a second inflation lumen therethrough.

24. The bifurcated stent delivery device of claim 19 wherein the expansion member comprises a single balloon.